

AMENDMENTS TO THE CLAIMS

Amended claims follow:

1. (Previously Presented) A system for providing passive screening of transient messages in a distributed computing environment, comprising:
 - a network interface passively monitoring a transient packet stream at a network boundary comprising receiving incoming datagrams structured in compliance with a network protocol layer;
 - a packet receiver reassembling one or more of the incoming datagrams into a segment structured in compliance with a transport protocol layer;
 - an antivirus scanner scanning contents of the reassembled segment for a presence of at least one of a computer virus and malware to identify infected message contents;
 - and
 - a protocol-specific module processing each reassembled datagram based on the transport protocol layer employed by the reassembled datagram.
2. (Original) A system according to Claim 1, further comprising:
 - an incoming queue staging each incoming datagram intermediate to reassembly.
3. (Original) A system according to Claim 1, further comprising:
 - a network protocol-specific decoder decoding the reassembled segment prior to scanning.
4. (Original) A system according to Claim 1, wherein the antivirus scanner terminates the transient packet stream if the reassembled segment is not infected with at least one of a computer virus and malware.
5. (Original) A system according to Claim 1, wherein the antivirus scanner takes an action if the reassembled segment is infected with at least one of a computer virus and malware.

6. (Original) A system according to Claim 5, wherein the action comprises at least one of logging an infection; generating a warning; spoofing a valid datagram in place of the infected datagram; and acquiescing to the infection.

7. (Original) A system according to Claim 1, further comprising:
a protocol-specific queue staging each reassembled segment with other reassembled segments sharing the same transport protocol layer.

8. (Original) A system according to Claim 7, further comprising:
an information record storing information dependent on the same transport protocol layer with the staged reassembled segment.

9. (Original) A system according to Claim 8, further comprising:
a contents record storing the contents with the staged reassembled segment.

10. (Original) A system according to Claim 8, wherein the information comprises at least one of a source address, source port number, destination address, destination port number, URL, file name, user name, sender identification, recipient identification, and subject.

11. (Cancelled)

12. (Cancelled)

13. (Original) A system according to Claim 1, further comprising:
an event correlator analyzing the transient packet stream for events indicative of a network service attack.

14. (Original) A system according to Claim 13, further comprising:
a data repository maintaining each event.

15. (Original) A system according to Claim 1, wherein the distributed computing environment is TCP/IP-compliant and each incoming message is SMTP-compliant.

16. (Previously Presented) A method for providing passive screening of transient messages in a distributed computing environment, comprising:
passively monitoring a transient packet stream at a network boundary comprising receiving incoming datagrams structured in compliance with a network protocol layer;
reassembling one or more of the incoming datagrams into a segment structured in compliance with a transport protocol layer;
scanning contents of the reassembled segment for a presence of at least one of a computer virus and malware to identify infected message contents; and
processing each reassembled datagram based on the transport protocol layer employed by the reassembled datagram.

17. (Original) A method according to Claim 16, further comprising:
staging each incoming datagram intermediate to reassembly.

18. (Original) A method according to Claim 16, further comprising:
decoding the reassembled segment prior to scanning.

19. (Original) A method according to Claim 16, further comprising:
terminating the transient packet stream if the reassembled segment is not infected with at least one of a computer virus and malware.

20. (Original) A method according to Claim 16, further comprising:
taking an action if the reassembled segment is infected with at least one of a computer virus and malware.

21. (Original) A method according to Claim 20, further comprising:

executing the action, comprising at least one of:

logging an infection;

generating a warning;

spoofing a valid datagram in place of the infected datagram; and

acquiescing to the infection.

22. (Original) A method according to Claim 16, further comprising:
staging each reassembled segment with other reassembled segments sharing the same transport protocol layer.

23. (Original) A method according to Claim 22, further comprising:
storing information dependent on the same transport protocol layer with the staged reassembled segment.

24. (Original) A method according to Claim 23, further comprising:
storing the contents with the staged reassembled segment.

25. (Original) A method according to Claim 23, wherein the information comprises at least one of a source address, source port number, destination address, destination port number, URL, file name, user name, sender identification, recipient identification, and subject.

26. (Cancelled)

27. (Cancelled)

28. (Original) A method according to Claim 16, further comprising:
analyzing the transient packet stream for events indicative of a network service attack.

29. (Original) A method according to Claim 28, further comprising:

maintaining each event in a data repository.

30. (Original) A method according to Claim 16, wherein the distributed computing environment is TCP/IP-compliant and each incoming message is SMTP-compliant.

31. (Previously Presented) A computer-readable storage medium holding code for performing the method according to Claims 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 28, 29, or 30.

32. (Previously Presented) A system for passively detecting computer viruses and malware and denial of service-type network attacks in a distributed computing environment, comprising:

a network interface receiving copies of datagrams transiting a boundary of a network domain into an incoming packet queue, each datagram being copied from a packet stream;

a packet receiver reassembling one or more such datagrams from the incoming packet queue into network protocol packets, each staged in a reassembled packet queue;

an antivirus scanner scanning each network protocol packet from the reassembled packet queue to ascertain an infection of at least one of a computer virus and malware; and

an event correlator evaluating events identified from the datagrams in the packet stream to detect a denial of service-type network attack on the network domain;

wherein a protocol-specific module processes each reassembled datagram based on an upper protocol layer employed by the reassembled datagram.

33. (Original) A system according to Claim 32, further comprising:

a parser parsing each reassembled datagram into network protocol-specific information and packet content.

34. (Original) A system according to Claim 33, wherein the network protocol-specific information comprises a source address, source port number, destination address, destination port number, and URL for HTTP; a file name and user name for FTP; and a sender identification, recipient identification, and subject for SMTP.

35. (Original) A system according to Claim 33, further comprising:
a decoder decoding the packet content prior to performing the operation of scanning.

36. (Original) A system according to Claim 32, further comprising:
a log logging an occurrence of at least one of the infection and the network attack.

37. (Original) A system according to Claim 32, further comprising:
a warning module generating a warning responsive to an occurrence of at least one of the infection and the network attack.

38. (Original) A system according to Claim 32, further comprising:
a spoof module sending a spoofed network protocol packet responsive to an occurrence of at least one of the infection and the network attack.

39. (Cancelled)

40. (Original) A system according to Claim 32, wherein the distributed computing environment is TCP/IP-compliant, each datagram is IP-compliant, and each network protocol packet is TCP-compliant.

41. (Previously Presented) A method for passively detecting computer viruses and malware and denial of service-type network attacks in a distributed computing environment, comprising:

receiving copies of datagrams transiting a boundary of a network domain into an incoming packet queue, each datagram being copied from a packet stream;

reassembling one or more such datagrams from the incoming packet queue into network protocol packets, each staged in a reassembled packet queue;

scanning each network protocol packet from the reassembled packet queue to ascertain an infection of at least one of a computer virus and malware; and

evaluating events identified from the datagrams in the packet stream to detect a denial of service-type network attack on the network domain;

wherein a protocol-specific module processes each reassembled datagram based on an upper protocol layer employed by the reassembled datagram.

42. (Original) A method according to Claim 41, further comprising:
parsing each reassembled datagram into network protocol-specific information and packet content.

43. (Original) A method according to Claim 42, wherein the network protocol-specific information comprises a source address, source port number, destination address, destination port number, and URL for HTTP; a file name and user name for FTP; and a sender identification, recipient identification, and subject for SMTP.

44. (Original) A method according to Claim 42, further comprising:
decoding the packet content prior to performing the operation of scanning.

45. (Original) A method according to Claim 41, further comprising:
logging an occurrence of at least one of the infection and the network attack.

46. (Original) A method according to Claim 41, further comprising:
generating a warning responsive to an occurrence of at least one of the infection and the network attack.

47. (Original) A method according to Claim 41, further comprising:
sending a spoofed network protocol packet responsive to an occurrence of at least one of the infection and the network attack.

48. (Cancelled)

49. (Original) A method according to Claim 41, wherein the distributed computing environment is TCP/IP-compliant, each datagram is IP-compliant, and each network protocol packet is TCP-compliant.

50. (Previously Presented) A computer-readable storage medium holding code for performing the method according to Claims 41, 42, 43, 44, 45, 46, 47, or 49.

51. (Previously Presented) A system according to Claim 32, wherein the network protocol packets employ at least one of HTTP, FTP, SMTP, POP3, NNTP, and Gnutella network protocols.

52. (Previously Presented) A system according to Claim 32, wherein only datagrams compliant with IP protocol are reassembled.

53. (Previously Presented) A system according to Claim 32, wherein the antivirus scanner includes a plurality of protocol-specific scanning submodules, each protocol-specific scanning submodule designated for scanning network protocol packets of a particular protocol.

54. (Previously Presented) A system according to Claim 53, wherein the protocol-specific scanning submodules include an HTTP submodule, an FTP submodule, an SMTP submodule, and an NNTP submodule.

55. (Previously Presented) A system according to Claim 1, wherein the incoming datagrams include IP datagrams that are reassembled into TCP segments.

56. (New) A system according to Claim 47, wherein the spoofed network packet spoofs an origin server by sending a legitimate packet in place of an infected packet.

57. (New) A system according to Claim 53, wherein each of the protocol-specific scanning submodules is used for retrieving a re-assembled packet from an associated protocol-specific queue.